NOTEWORTHY VASCULAR PLANTS FROM ARKANSAS. II

Eric Sundell

School of Mathematical and Natural Sciences
University of Arkansas
Monticello, AR 71656, U.S.A.

R. Dale Thomas

Department of Biology
University of Louisiana at Monroe
Monroe, LA 71209, U.S.A.

Carl Amason

P.O. Box 164
Calion, AR 71724, U.S.A.

Chris Doffitt

Department of Biology
University of Louisiana at Monroe
Monroe, LA 71209, U.S.A.

ABSTRACT

The authors provide a list of 41 additions, reinstatements, and significant range extensions for the flora of Arkansas. *Alternanthera paronychioides, Bowlesia incana, Eleocharis montevidensis, Hypoxis curtissii, Nandina domestica, Polygonum setaceum,* and *Trifolium lappaceum* are reported as new and persistent elements, while *Ipomea ×leucantha, Mirabilis jalapa, Najas minor,* and *Veronica polita* are reinstated to the state flora. A number of alien weeds—*Cynoglossum zeylanicum, Eleusine tristachya, Euphorbia hirta, Scoparia dulcis, Tragopogon pratensis, Trifolium nigrescens, Verbena montevidensis*—are noticed and documented for the first time, however, their persistence is not known.

RESUMEN

Los autores proporcionan una lista donde se enumeran 41 adiciones, restablecimientos, y extensiones de área significativas para la flora de Arkansas. *Alternanthera paronychioides, Bowlesia incana, Eleocharis montevidensis, Hypoxis curtissii, Nandina domestica, Polygonum setaceum,* y *Trifolium lappaceum* son citadas como componentes nuevos y persistentes del área, mientras que *Ipomea X leucantha, Mirabilis jalapa, Najas minor,* y *Veronica polita* son una rehabilitación paraa la flora del estado. Un número de malas hierbas de origen alóctono—*Cynoglossum zeylanicum, Eleusine tristachya, Euphorbia hirta, Scoparia dulcis, Tragopogon pratensis, Trifolium nigrescens, Verbena montevidensis*—son mencionadas y documentadas por primera vez, sin embargo, su persistencia no es conocida.

The authors provide a list of 41 taxa representing additions and reinstatements to the Arkansas flora as well as noteworthy range extensions within the state. Herbarium abbreviations are taken from Holmgren et al. (1990).

AMARANTHACEAE

Alternanthera paronychioides St. Hilaire. Thomas discovered large populations of this prostrate chaff-flower around the edge of borrow pits inside the Mississippi River levee, in Chicot and Lincoln counties, in August and September, 2000. Duplicate specimens were confirmed by Kenneth R. Robertson of the Illinois Natural History Survey in Champaign.

Voucher specimens: **Chicot Co.:** *Thomas 166,893 & 167,194* (NLU, UAM). **Lincoln Co.:** *Thomas & Sundell 167,417* (NLU, UAM).

SIDA 20(1): 409 – 418. 2002

APIACEAE

Bowlesia incana Ruiz and Pavon is a decumbent annual of low woods, clearings, lawns, and other moist, weedy places, occurring sporadically in Louisiana and eastern Texas (Thomas and Allen 1996, Diggs et al. 1999). We record its first appearance in Arkansas from Chicot County in the southeast corner of the state, along a road bank as well as in alluvial woods along Indian Creek south of Eudora.

Voucher specimens: **Chicot Co.:** *Thomas 164,552* (NLU), *164,589* (NLU, UAM).

Sanicula smallii Bickn. Smith (1988) documents this cryptic black snakeroot from two counties in the Ozark Mountains. We add collections from the Ouachita Mountains and the Coastal Plain and suggest that the species might be undercollected in Arkansas. It is distinguished in the field from the widespread *S. canadensis* by rather subtle characters: sessile, slightly larger fruits and semi-succulent leaves. (The tuberous, thickened roots are only helpful *after* the plant has been recognized.) In addition, in at least one of our populations the two woodland species were mixed, with *S. canadensis* much the more common.

Voucher specimens: **Bradley Co.:** *Leslie 438B* (NLU). **Lafayette Co.:** *Sundell, Thomas, & Amason 12,300* (UAM). **Montgomery Co.:** *E. & J. Sundell 11,826* (UAM). **Ouachita Co.:** *Thomas & Doffitt 163,219* (NLU). **Union Co.:** *Thomas 104,816* (NLU).

ASTERACEAE

Hypochoeris glabra L. Smith (1988) documents smooth cat's ear, a European weed, from two counties in south Arkansas. We supply voucher specimens for his two *Atlas* reports ("R" for Ashley and Bradley counties) and add eight additional counties to the record.

Voucher specimens: **Ashley Co.:** *Hooks 253* (NLU). **Bradley Co.:** *Leslie 1756* (NLU). **Cleveland Co.:** *Thomas 135,389* (NLU). **Conway Co.:** *Edwin B. Smith 4032* (UAM). **Lafayette Co.:** *Thomas, Sundell & Amason 127,585* (NLU). **Miller Co.:** *Thomas 160,883* (NLU). **Nevada Co.:** *Thomas & Slaughter 104,341* (NLU, UAM). **Ouachita Co.:** *Thomas & Doffitt 169,040* (NLU). **Sevier Co.:** *Thomas, Sundell & Amason 166,304* (NLU). **Union Co.:** *Sundell, Thomas, & Amason 8210* (UAM).

Marshallia caespitosa Nutt. In May, 1999, lavender-flowered Barbara's buttons was known in Arkansas from eleven occurrences recorded in the Arkansas Natural Heritage Commission data base. During a field study commissioned by the Heritage Commission, ten of those populations, scattered in glades and open, riparian communities in the Ozark and Ouachita highlands, were relocated and several voucher specimens made.

Voucher specimens (**M. caespitosa** Nutt. var. **caespitosa**): **Carroll Co.:** *Sundell & Wallace 12,617* (UAM). **Madison Co.:** *Dalton & Dow 1a* (UARK). **Montgomery Co.:** *Sundell & Wallace 12,576* (UAM, UARK), *Sundell & Wallace 12,585* (UAM).

Voucher specimens (**M. caespitosa** Nutt. var. **signata** Beadle & Boynt): **Perry Co.:** *Thomas 139,690* (NLU). **Pulaski Co.:** *Sundell & Wallace 12,574* (UAM).

Tragopogon pratensis L. lacks the inflated peduncles of *T. dubius*, the common

goat's beard of the roadsides of north Arkansas. *T. pratensis* is widely established in the northern U.S., extending south to Tennessee (Cronquist 1980), but has not previously been reported from Arkansas.

Voucher specimen: **Lawrence Co.:** *Sundell 10,417* (UAM).

BERBERIDACEAE

Nandina domestica Thunb. A candidate for the most popular ornamental shrub in south Arkansas, "heavenly bamboo" is not documented as a naturalized species of the state flora. It both persists after cultivation and escapes (presumably dispersed by birds) to open areas and wood margins where it is sufficiently competitive to reach reproductive maturity.

Voucher specimen: **Ashley Co.:** *Sundell & McDonald 7619* (UAM).

BORAGINACEAE

Cynoglossum zeylanicum (Hornem.) Thunb. ex Lehm. This previously unreported hound's tongue grew as an aggressive pasture weed in Sevier County in the foothills of the Ouachita Mountains. In addition, a second collection is reported from sandy soil in Union County. The species is known in the Southeast from Texas (Jones et al. 1997; Diggs et al. 1999) and Louisiana (from Claiborne and Union parishes along the Arkansas border) (Thomas and Allen 1996). The burs (mericarps) are 3-4 mm long, smaller than those of *C. virginianum* and *C. officinale*.

Voucher specimens: **Sevier Co.:** *Tyler s.n.* (NLU, UAM, UARK). Union **Co.:** *Thomas 116,853* (NLU).

CAMPANULACEAE

Wahlenbergia marginata (Thunb.) DC. was first reported for Arkansas (Thomas et al. 1991) from a road bank in Union County. The species was rediscovered in 2000 along railroad tracks on the south side of Camden.

Voucher specimen: **Ouachita Co.:** *Thomas & Doffitt 167,860* (NLU).

COMMELINACEAE

Murdannia keisak (Hassk.) Hand.-Mazz. We add two more documented occurrences of this easily overlooked, rambling, succulent-stemmed herb, previously known in Arkansas from two localities (Sundell et al. 1999).

Voucher specimens: **Faulkner Co.:** *Thomas & Sundell 164,429* (NLU). **Ouachita Co.:** *Thomas & Doffitt 63,274* (NLU).

CONVOLVULACEAE

Ipomea × leucantha Jacq. The pink bindweed treated by Fernald (1950) and Smith (1988) as *Ipomoea lacunosa* L. forma *purpurata* Fern. is recognized by Austin (1978) as a natural hybrid between *I. lacunosa* and *I. trichocarpa* Ell. (*I. cordatotriloba* Dennst.). We add a third county record to the two cited in Smith, all three in the Mississippi Delta of southeast Arkansas.

Voucher specimen: **Drew Co.:** *Sundell & Wiley 8686* (UAM).

Ipomea cordatotriloba Dennst. We add three county records, from agricultural sites, to the documented Arkansas distribution (Lafayette County, Smith 1988) of this weedy purple morning glory.

Voucher specimens: **Crittenden Co.:** *Thomas 113,405* (NLU, UAM). **Jefferson Co.:** *Thomas 147,277* (NLU, UAM). **Ouachita Co.:** *Thomas & Doffitt 167,857* (NLU).

CUCURBITACEAE

Citrullus lanatus (Thunb.) Matsum. & Nikai var. **lanatus**. Six collections from southeast Arkansas document the status of watermelon at least as a waif in the state flora.

Voucher specimens: **Bradley Co.:** *Thomas & Amason 141,965* (NLU, UAM). **Calhoun Co.:** *Sundell et al. 12,536* (UAM). **Chicot Co.:** *Thomas 164,414* (NLU). **Lincoln Co.:** *Thomas & Sundell 167,480* (NLU). **Ouachita Co.:** *Thomas & Doffitt 167,999* (NLU). **Union Co.:** *Thomas 111,808* (NLU).

CYPERACEAE

Eleocharis montevidensis Kunth is known from northern Louisiana (Thomas and Allen 1993) and included in Smith's *Keys to the flora of Arkansas* (1994) as a possible addition to the state flora. We document its occurrence with a collection from Lake June in Stamps, in southwest Arkansas.

Voucher specimens: **Lafayette Co.:** *Sundell, Thomas, & Amason 12,273* (UAM, UARK).

Websteria confervoides (Poir.) Hooper (*Scirpus confervoides* Poir. in Lam.). Walker and Campbell (1997) first reported this submersed, aquatic sedge in Arkansas from a Jefferson County collection. We add two collections from Union County. The species is rather broadly distributed in Louisiana (twelve parishes, four along the Arkansas border; Thomas & Allen 1993) and probably more widespread in southern Arkansas than we know.

Voucher specimens: **Jefferson Co.:** *Walker 1206961* (UAM). **Union Co.:** *Thomas & Amason 143,312* (NLU, UAM); *Crossland s.n.* (UAM).

ELATINACEAE

Bergia texana (Hook.) Seub. ex Walp. Collections from the banks of the Red River and the Arkansas River represent the third and fourth confirmed occurrences of this species in Arkansas.

Voucher specimens: **Lafayette Co.:** *Thomas 120,776* (NLU). **Lincoln Co.:** *Thomas & Sundell 167,421* (NLU).

EUPHORBIACEAE

Caperonia palustris (L.) St.-Hil. is a wetland weed of tropical American origin known to occur in the U.S. in south Florida, Louisiana and southeast Texas (Godfrey & Wooten 1981). Smith (1988) has seen specimens from three Mississippi Delta counties in southeast Arkansas to which we add a fourth, where plants were collected from a rice field.

Voucher specimen: **Jefferson Co.:** *Brady Harmon s.n.* (UAM).

Euphorbia hirta L. was found growing as a weed in a flower bed in southeast

Arkansas, its stems ascending above a mat of *E. maculata* L. The species is previously unreported for Arkansas.

Voucher specimens: **Bradley Co.:** *Sundell 15,130* (BRIT-SMU, NLU, NY, UAM, UARK).

Phyllanthus tenellus Roxb. was reported (Sundell et al. 1999) as a tentative addition to the Arkansas flora from weeds escaping their containers at a Drew County nursery. We add a second locality, Ellis's Nursery in Fountain Hill, Ashley County, where again plants arriving as weeds in containers from Louisiana and Texas have spread aggressively throughout the nursery's grounds and greenhouses.

Voucher specimens: **Ashley Co.:** *E. & M. Sundell 13,039* (BRIT-SMU, NLU, UAM, UARK).

FABACEAE

Lathyrus aphaca L. Previously documented only from Miller County in southwest Arkansas (Smith 1988), this unique Eurasian peavine (the stipules functionally replace the leaflets) was collected on a roadbank in central Arkansas. Established on the West Coast (Isely 1998), the species is apparently taking hold in the Southeast as well. It was first reported for the region from Tennessee in 1972 (Beardsley and Browne) and recently from Texas in 1997 (Jones and Reznicek). Thomas and Allen (1998) map collections from four Louisiana parishes.

Voucher specimens: **Conway Co.:** *Thomas & Amason 135,545* (NLU, UAM).

Medicago minima (L.) Bartal. A fourth Arkansas county is added to the record for little bur clover.

Voucher specimen: **Washington Co.:** *Sundell, Thomas & Amason 14,155* (UAM).

Trifolium lappaceum L. Lappa clover is a distinctive Old World clover naturalized on the Gulf Coast from Alabama to east Texas (Isely 1990). It is reported here as new to Arkansas from Grandview Prairie, near Columbus, in Hempstead County. The Arkansas Game and Fish Commission is successfully restoring this blackland prairie site to its original vegetation. Plants were collected in a restored area dominated by compass plant (*Silphium laciniatum*) and purple and white prairie clovers (*Dalea purpurea, D. candida*)—a spring alien among summer natives.

Voucher specimen: **Hempstead Co.:** *Sundell 12,371* (UAM).

Trifolium nigrescens Viviani. Ball clover is a sprawling, weedy annual from southern Europe and southwest Asia recently introduced into the southeastern United States (Isely 1998). Two collections from ruderal sites document its occurrence and extend its range as a naturalized species in Arkansas. Ball clover is easily mistaken for alsike clover (*T. hybridum*) but distinguished by the smaller umbels and scarious (rather than membranous), more subulate stipules.

Voucher specimens: **Bradley Co.:** *Thomas & Leslie 92,208 & 974* (NLU, UAM). **Drew Co.:** *Sundell 13,172* (NLU, UAM, UARK).

HYPERICACEAE

Hypericum nudiflorum Michx. Smith (1988) documents this shrubby St. John's wort from Drew County in southeast Arkansas. We here confirm his report (no voucher specimen was seen) of the species' presence in Ashley County with two collections, and we document two additional counties.

Voucher specimens: **Ashley Co.:** *Sundell, Hartrick, & Etheridge 7234* (UAM); *Thomas 97,093* (NLU). **Poinsett Co.:** *Thomas 10,314* (NLU). **Union Co.:** *Thomas 107,901* (NLU).

LAMIACEAE

Melissa officinalis L. Smith (1988) records lemon balm as an adventive from several Ozark and Ouachita Mountain counties. We here make note of a collection from the Coastal Plain.

Voucher specimen: **Grant Co.:** *Thomas & Sundell 164,430* (NLU).

LILIACEAE

Hypoxis curtissii J. Rose (*H. leptocarpa* (Engelm. & Gray) Small) grows in swamps and floodplain forests of the Atlantic and Gulf coastal plains (Godfrey and Wooten 1979). We record it as new to the state from Bodcaw Creek, in southwest Arkansas, where it occurred with *Styrax americana, Planera aquatica, Fraxinus caroliniana,* and *Crataegus opaca* under an overstory of *Quercus lyrata.*

Voucher specimens: **Lafayette Co.:** *Sundell, Thomas, & Amason 12,342* (UAM, UARK).

Lycoris radiata (L'Her.) Herb. With its leaves appearing in autumn after the flowers, red spider lily is nicely adapted to the annual lawn mowing rhythms of most homeowners and has become a common lawn weed in southeast Arkansas as well as an occasional waif in other disturbed sites. We note its presence in the Arkansas flora with three collections.

Voucher specimens: **Chicot Co.:** *Thomas 163,666* (NLU). **Drew Co.:** *Sundell 9,239* (UAM). **Ouachita Co.:** *Thomas & Doffitt 167,947* (NLU).

NAJADACEAE

Najas minor Allioni. Northeast Arkansas is included by Haynes (1979) within the range of this distinctive Old World naiad, but neither localities nor specimens are cited. Thomforde's collection from the shallow margin of a goldfish pond in central Arkansas (21 August 2000) reconfirms the species' occurrence in the state. Recent north Louisiana collections unknown to Haynes (Thomas & Allen 1993) suggest that *Najas minor*, which apparently invaded North America around 1930, may still be extending its range to the west and is likely more widespread in Arkansas than we know.

Voucher specimen: **Lonoke Co.:** *Thomforde s.n.* (UAM)

NYCTAGINACEAE

Mirabilis jalapa L. Reported by Leslie (1986) but excluded by Smith (1988) as a naturalized element in Arkansas, four o'clock is reinstated with roadside col-

lections from the Ozark Highlands and the Coastal Plain. At none of the sites did plants appear to be merely persisting after cultivation. Four o'clock is mapped by Thomas and Allen (1998) from six of eight of Louisiana's northern tier of parishes.

Voucher specimens: **Bradley Co.:** *Thomas & Amason 142,066* (NLU, UAM). **Newton Co.:** *Thompson 685* (NLU). **Union Co.:** *Thomas & Amason 111,373* (NLU, UAM).

POACEAE

Andropogon ischaemum L. var. **songaricus** Rupr. ex Fisch. & Mey. (*Bothriochloa ischaemum* (L.) Keng var. *songaricus* (Rupr.) Celerier & Harlan), an intrusive, pernicious Eurasian bluestem, is common to the roadsides and pastures of the southern Great Plains (Gould 1975, Great Plains Flora Association 1986). It has become widespread in Louisiana (Thomas & Allen 1993) and an occasional weed east to Florida (Wunderlin 1998). We add three counties to its documented occurrence (Franklin Co.) in Arkansas.

Voucher specimens: **Drew Co.:** *Sundell 15,128* (NLU, NY, UAM, UARK). **Miller Co.:** *Miesner s.n.* (UAM). **Ouachita** Co. *Thomas & Doffitt 168,023* (NLU).

Eleusine tristachya (Lam.) Lam., a diminutive goosegrass of African origin, is known as a waif in North America from a few scattered localities (Hitchcock and Chase 1950, Kucera 1998) and is apparently naturalized in California (Smith 1993). We report it as a new record from northeast Arkansas, where it occurred as a lawn weed.

Voucher specimen: **Independence Co.:** *S.D. Carter s.n.* (UAM).

POLYGONACEAE

Fagopyrum esculentum Moench. Buckwheat spreads easily from cultivation to waste places but seldom persists (Great Plains Flora Association 1986, Steyermark 1963). Collections from a small population at the edge of a campus parking lot mark the species' first documented occurrence as a waif in Arkansas.

Voucher specimens: **Drew Co.:** *Sundell 12,567* (UAM, UARK).

Polygonum setaceum Baldwin. Godfrey and Wooton (1981) include Arkansas within the range of this widespread smartweed, and Smith (1988) made note of the species as a possible addition to the state flora based on its occurrence in several Louisiana parishes along Arkansas' southern border (MacRoberts 1988). We confirm its presence with voucher specimens from three counties.

Voucher specimens: **Chicot Co.:** *Thomas 163,358* (NLU). **Hot Spring Co.:** *Sundell & Crank 10,733* (UAM). **Union Co.:** *Thomas 112,374* (NLU).

RUBIACEAE

Diodia dasycephala C.&S. Especially in the field, "perennial poorjoe" so closely resembles *Spermacoce glabra* (rather than either of the common, congeneric

buttonweeds, *D. teres* and *D. virginiana*) that it has perhaps been overlooked and misidentified as often as any taxon in southern Arkansas. The two can be distinguished vegetatively. Leaves of the *Diodia* are shorter and dry greener; those of the *Spermacoce* are more prominently veined beneath. *Spermacoce glabra* bears numerous, whitish scalelike hairs at the stipular sheath summit beneath and between the bristles while *D. dasycephala* possesses a (more or less) prominent vein that traverses the broader summit of the glabrous stipular sheath just below its bristle-bearing margin. *Diodia dasycephala* is documented from six parishes in north Louisiana (Thomas & Allen 1998) and two counties in southeast Arkansas (Smith 1988). We add three more counties to the record, one from central Arkansas.

Voucher specimens: **Chicot Co.:** *Thomas 164,170* (NLU). **Faulkner Co.:** *Sundell & Thomas 15,954* (NY, UAM, UARK). **Lafayette Co.:** *Thomas, Sundell, & Amason 156,442* (NLU).

SCROPHULARIACEAE

Lindernia crustacea (L.) F. von Muell. is a wetland species, originally from southern Asia, that occurs sporadically in the coastal plain of the Southeast (Godfrey & Wooten 1981). Our collection represents the second documented occurrence in Arkansas.

Voucher specimen: **Pulaski Co.:** *Sundell 12,437* (UAM).

Scoparia dulcis L. Thomas and Amason collected this tropical American weed in a clearcut. It is known regionally from the Gulf Coast states (Correll & Johnston 1970) but unreported for Arkansas.

Voucher specimens: **Cleveland Co.:** *Thomas & Amason 158,319* (NLU, UAM).

Veronica hederifolia L. is confirmed by Smith (1988) for two northwest Arkansas counties. We add four more counties to the record of this relatively distinctive speedwell.

Voucher specimens: **Chicot Co.:** *Thomas 164,620* (NLU). **Mississippi Co.:** *Barbee 24* (UAM). **Pulaski Co.:** *Burgess & Bernstein 001* (UAM). **Saline Co.:** *Thomas & Amason 148,563 (NLU).*

Veronica polita Fries appears sufficiently distinct from *V. agrestis* to be recognized as a separate species. Specimens seen by Smith (especially at UARK), who merges the two in the Arkansas *Atlas* (1988), should probably be reexamined for additional material of the former species. We document the presence of *V. polita* in Arkansas from four counties.

Voucher specimens: **Baxter Co.:** *Hyatt 1063.03* (UAM). **Drew Co.:** *Sundell 10,755* (UAM). **Garland Co.:** *Demaree 59,995* (NLU). **Washington Co.:** *Sundell 12,263* (UAM).

VERBENACEAE

Verbena montevidensis Spreng. Thomas and Allen (1998) record this slender vervain from three parishes in central and eastern Louisiana. Four collections from south Arkansas suggest that it may have become established in this state as well.

Voucher specimens: **Ashley Co.:** *Thomas and Hooks 92,761* (NLU, UAM). **Bradley Co.:** *Thomas 90,519* (NLU). **Chicot Co.:** *Thomas 166,906* (NLU). **Union Co.:** *Thomas & Amason 111,853* (NLU).

ZANNICHELLIACEAE

Zannichellia palustris L. Horned pondweed is documented from three counties in the Ozark Plateau of northeast Arkansas (Smith 1988). Two collections of the submersed aquatic from central and southwest Arkansas extend its range to the Mississippi River Alluvial Plain and West Gulf Coastal Plain.

Voucher specimens: **Howard Co.:** *Lawson 2117* (NLU). **Lonoke Co.:** *Thomforde s.n.* (UAM).

ACKNOWLEDGMENTS

The authors express their appreciation to Isabel Bacon of the School of Arts and Humanities, University of Arkansas at Monticello, for translating the English abstract into Spanish. Thanks also to Ralph W. Tyler of the Sevier County Extension Service for his efforts in collecting additional specimens of *Cynoglossum zeylanicum*, to Hugh Thomforde of the Lonoke Agricultural Center for his collections of *Najas minor* and *Zannichellia palustris*, and to Judy Griffith of Ninestone Land Trust in Carroll County for leading us to a splendid population of *Marshallia caespitosa* in full bloom.

REFERENCES

Austin, D.F. 1978. The *Ipomoea batatas* complex–I. Taxonomy. Bull. Torrey Bot. Club 105: 114–129.

Beardsley, R.L. and E.T. Browne, Jr. 1972. *Lathyrus aphaca* L. new to Tennessee and the Southeast. Rhodora 74:155.

Correll, D.S. and M.C. Johnston. 1970. Manual of the vascular plants of Texas. Texas Research Foundation, Renner.

Cronquist, A. 1980. Vascular flora of the southeastern United States. Vol. 1. Asteraceae. The University of North Carolina Press, Chapel Hill.

Diggs, G.M., Jr., B.L. Lipscomb, and R.J. O'Kennon. 1999. Shinners and Mahler's illustrated flora of north central Texas. Botanical Research Institute of Texas, Fort Worth and Austin College Center for Environmental Studies, Sherman, Texas.

Fernald, M.L. 1950. Gray's manual of botany, ed. 8. American Book Company, New York.

Godfrey, R.K. and J.W. Wooten. 1979. Aquatic and wetland plants of the southeastern United States. Monocotyledons. The Univ. of Georgia Press, Athens.

Godfrey, R.K. and J.W. Wooten. 1981. Aquatic and wetland plants of the southeastern United States. Dicotyledons. The Univ. of Georgia Press, Athens.

Gould, F.W. 1975. The grasses of Texas. Texas A & M University Press, College Station.

Great Plains Flora Association. 1986. Flora of the Great Plains. University Press of Kansas, Lawrence.

Haynes, R.R. 1979. Revision of North and Central American *Najas* (Najadaceae). Sida 8: 34–56.

Hitchcock, A.S. and A. Chase. 1950. Manual of the grasses of the United States, ed. 2. (United

States Department of Agriculture, Miscellaneous Publication No. 200.) United States Government Printing Office, Washington, D.C.

Holmgren, P.K., N.H. Holmgren, and L.C. Barnett. 1990. Index herbariorum. Part I: The herbaria of the world, ed. 8. New York Botanical Garden, Bronx.

Isely, D. 1990. Vascular flora of the southeastern United States. Vol. 3, Part 2. Leguminosae. The University of North Carolina Press, Chapel Hill.

Isely, D. 1998. Native and naturalized Leguminosae (Fabaceae) of the United States. Monte L. Bean Life Science Museum, Provo, Utah.

Jones, S.D. and A.A. Reznicek. 1997. *Lathyrus aphaca* (Fabaceae), previously unreported for Texas. Phytologia 82:1–2.

Jones, S.D., J.K. Wipff, and P.M. Montgomery. 1997. Vascular plants of Texas. University of Texas Press, Austin.

Kucera, C.L. 1998. The grasses of Missouri, rev. ed. University of Missouri Press, Columbia.

Leslie, S.A. 1986. A preliminary survey of the vascular flora of Bradley County, Arkansas. M.S. Thesis, Northeast Louisiana University [University of Louisiana at Monroe].

MacRoberts, D.T. 1988. A documented checklist and atlas of the vascular flora of Louisiana. Part III. Dicotyledonae. Fagaceae to Zygophyllaceae. Louisiana State University in Shreveport.

Smith, E.B. 1988. An atlas and annotated list of the vascular plants of Arkansas, ed. 2. Published by the author, Fayetteville, Arkansas.

Smith, E.B. 1994. Keys to the flora of Arkansas. The University of Arkansas Press, Fayetteville.

Smith, J.P., Jr. 1993. Poaceae. In: J.C. Hickman, ed. The Jepson manual: higher plants of California. University of California Press, Berkeley.

Steyermark, J.A. 1963. Flora of Missouri. The Iowa State University Press, Ames.

Sundell, E., R.D. Thomas, C. Amason, R.L. Stuckey, and J. Logan. 1999. Noteworthy vascular plants from Arkansas. Sida 18:877–887.

Thomas, R.D., E.B. Smith, E. Sundell, P.E. Hyatt and C. Amason. 1991. Additions to the flora of Arkansas. Sida 14:483–491.

Thomas, R.D. and C.M. Allen. 1993. Atlas of the vascular flora of Louisiana. Vol. I. Louisiana Department of Wildlife and Fisheries, Baton Rouge.

Thomas, R.D. and C.M. Allen. 1996. Atlas of the vascular flora of Louisiana. Vol. II. Louisiana Department of Wildlife and Fisheries, Baton Rouge.

Thomas, R.D. and C.M. Allen. 1998. Atlas of the vascular flora of Louisiana. Vol. III. Louisiana Department of Wildlife and Fisheries, Baton Rouge.

Walker, S.A. and J. Campbell. 1997. A floristic survey and annotated checklist of the Pine Bluff Arsenal. J. Arkansas Acad. Sci. 51:178–187.

Wunderlin, R.P. 1998. Guide to the vascular plants of Florida. University Press of Florida, Gainesville.